HORTICULTURE

— Illustrated —

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READERS' QUESTIONS ANSWERED

How can I propagate a clematis at home?

It can be layered very easily or grown from cuttings. Take a trailing stem and make as many cuttings as there are sets of leaves, cutting the stem about an inch above and an inch below the leaves. Put these cuttings down into moist sand until the bases of the leaf stems rest on the surface of the sand. Cover with glass and give partial shade. In three or four weeks most of them should be rooted.

* * * *

How many blueberries can one reasonably expect from well-established plants under good cultivation?

Under normal conditions they should produce around six quarts per plant or 3200 quarts per acre.

* * * *

What is the difference between crab-grass and quack grass, if any?

Although the terms are often loosely applied, crab-grass (Digitaria sanguinalis) is a wiry-stemmed annual which comes up in bare patches in lawns during the Summer and dies with the coming of frost, leaving behind the numerous seeds for the next year. It also spreads by means of the stems which root at the joints. Quack-grass, witch-grass or couch-grass (Agropyron repens), on the other hand, is a perennial. It produces underground stems which cause it to spread rapidly.

* * * *

What can you tell me about the culture of eremurus?

It grows best in rich soil which is reasonably moist during its growing season but has little or no water the remainder of the year. Good drainage is necessary at all times. Although the leaves disappear after flowering, the plant throws out a shoot very early in the Spring which must often be protected from frost by an inverted box or basket. Such a receptacle filled with leaves can also be inverted over the plants for the Winter but the covering must be water-tight.

* * * *

I have a few choice own-root lilacs. What is the best method of propagating a few more?

Perhaps, the easiest way is to take pieces of roots of about the thickness of a lead pencil, cut them up into sections three inches long and plant them in a pot of sand or a coldframe. Treated in this way, they seem to be able to produce plants at almost any time of year. Old plants can often be divided.

* * * *

How can I get rid of the dodder which is attacking my asters and petunias and gradually killing them?

There is no easy way to get rid of this pest without killing the other plants also. The only other sure way is to pull up and burn every bit of the dodder plants that can be found. Even a very small portion of stem can regenerate a completely new tangle in a short time, if allowed to do so.

* * * *

Tell me, briefly, something about the family and "background" of achimenes.

They belong to the family Gesneriaceæ. They are allied to the gloxinias and are native to tropical America. There are, perhaps, 40 species. However, the garden types have been much confused by hybridization and it is doubtful if there are any pure species in general cultivation in this country.

* * * *

Which is the so-called opium poppy and will it grow in this country?

It is Papaver somniferum which grows very readily in this country. It is a large-flowered annual and was, until recently, carried by almost all seedsmen in a wide variety of colors and forms. They ranged from white through pink and red to purplish and from singles to doubles, such as the carnation and peony-flowered poppies. Now, however, seed which will germinate is unobtainable owing to action taken by the narcotic authorities.

Entered as second-class matter December 8, 1904, at the Post Office at Boston, Mass., under the Act of Congress of March 3, 1897
Acceptance for mailing at special rate of postage, authorized August 14, 1925

Garden Work to do NOW

A TWICE-A-MONTH GUIDE

PLANTS of hardy annuals can soon be set into the positions in which they are to flower. Seeds of many of them may be sown outdoors.

THE FACT that the flower buds were frozen in most sections, makes prompt pruning of forsythias practical this year. Prune by removing oldest stems or any injured stems to ground level.

IF CLIPPINGS are removed from lawns spread them an inch or two deep as mulch beneath garden plants, dig them into the soil or add them to the compost pile. They are rich in nitrogen.

COLUMBINE leaves infested with miners should be picked and destroyed on sight. General sanitation and regular sprayings with nicotine sulfate, may also help to control this leaf-disfiguring insect.

AN OLD clump of delphinium will make a better display if all but three, or possibly five, stems are removed. Guard the rapidly growing stems against wind damage by tying them all to one strong but slender stake placed in the center of the clump.

WHERE daffodils or other bulbs are planted in turf, delay mowing until the bulb foliage dies down. Feeding the grass will lessen its competition with the bulbs and promote the growth of a natural mulch of dead grass tops at the end of the season.

WILD plants moved to the garden will thrive best if given much the same conditions that they were accustomed to in the woods. Collected plants cannot be said to be established in the garden until after they have flowered and set a crop of seeds.

TO GET usable information as to how to proceed against rabbits, woodchucks and other animal and bird pests, apply to the nearest county farm agent. Very often he will also be able to supply repellents and other materials essential to waging a successful fight.

CULTIVATE early and regularly to kill weeds in the germination stage. Care should be taken not to loosen about the roots of very young, tiny-rooted plants to the extent that they are killed by drying, or to work so deeply that the roots of established plants are injured.

STAY-AT-HOME gardeners can have fun through the use of an outdoor fireplace, even to the extent of canning outdoors. Charcoal is the ideal fuel since it is readily available, will last a long time if extinguished promptly by wetting and throws off no dangerous sparks.

SPINACH, head lettuce and other crops benefit from extra feeding can be side-dressed with a watering of liquid fertilizer prepared by dissolving a pound of victory garden fertilizer in two gallons of water. This same feeding will benefit most plants in soil not fertilized before digging.

A DEAD branch tip or two in an otherwise healthy rhododendron may indicate the presence of stem borers. Cut out such shoots making sure to destroy the borers. Two sprayings with nicotine and soap spray towards the end of the month will tend to control lace bugs. Direct the spray to the undersurfaces of the leaves.

POISON ivy can be killed by spreading ten pounds of borax on each square rod of soil. The borax works slowly, but effectively. It also kills some other kinds of plants—notably dogwoods—so it is unwise to place the borax above the roots of shade trees and other desirable plants whose tolerance for the material is not known.

WHEN buying tomato plants, find out which is the best way to train the particular variety which is selected. Some varieties do better when permitted to spread out on the ground unpruned, while others are adapted to the training of two or three stems on stakes or trellises. The latter are best for small gardens where space is at a premium.

WITH fertilizers containing chemical nitrogen denied ornamental plants, the flower garden can be fed with 40 or 50 pounds of dry poultry manure and 25 pounds of superphosphate per 1000 square feet. Poultry manure—preferably that mixed with peat moss litter—will also benefit evergreens. If wood ashes are used for soil sweetening, do not mix them with the manure, but make separate applications.

Table of Contents

Readers' Questions Answered 202
Garden Work to Do Now 203
When Animals and Birds Invade Gardens 205
Air, Water and Roots 206
Woodchuck Cartridges 206
Garden Club of America 206
Goldenrod That Stays Put 206
Long Life for Hyacinth Plantings 207
About Plant Name Rules 208
Plants With Edible Roots 208
The Perennial Gaillardia 208
Dainty Snowy Epimedium 208
Forcing Scilla Hispanica 208
Preparing for Canning 208
National Council Officers 208
Improved Plant Feeding 209
Infamous Plants and Why They Are Bad 210
A Second List 210
A Gardening Digest 211
The Victory Vegetable Garden 212
Rambling Observations of a Roving Gardener 213
Readers' Letters to the Editor 214
Horticulture May Be Late 214
Fruit Growing Questions 215
Long-Rooted Cinnamon Vine 215
A Long Phlox Season 215
Success With Gloxinias 216
Peat Moss and Roses 217
Germination of Small Seeds 217
Annuals Easy to Grow 218
Inexpensive Flower Book 219
Useful Book's Third Printing 219

THE COVER—Photograph by John Kabel.

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Published at
Horticultural Hall, Boston, Mass.

by

the Massachusetts Horticultural Society with the co-operation of The Horticultural Society of New York and the Pennsylvania Horticultural Society

Issued Semi-monthly
except July and August, when it is issued monthly

Subscription Rates
(in advance)
One Year, $1.50 Canada, $1.50
To Foreign Countries, $2.50

I HAVE A VICTORY GARDEN
CAN'T
CAN
I'VE PUT UP A YEARS' FOOD SUPPLY FOR THE WHOLE FAMILY
DRY MY SURPLUS VEGETABLES? THATS AN IDEA!
BE A CITY GARDENER
THIS IS WHAT I PRODUCE A SURPLUS FOR -
TO THE BOYS IN THE SERVICE
YOUR GARDEN

Large numbers of excellent cartoons are being used by the Department of Agriculture in Washington to encourage food production and food preservation. Those reproduced herewith were selected from Extension Service publications.

MAY 15, 1943 VOL. XXI. NO. 10

HORTICULTURE

Better Gardens Make Better Homes

WHEN ANIMALS AND BIRDS INVADE GARDENS

THE victory gardener must carry on a constant pest control program if he is to reserve the products of his labors for use of his family. And not all these pests are insects. Animals and birds — both wild and domestic — can on occasion wreak destruction in the garden.

One voracious thief is the wild cottontail rabbit with an appetite for carrots, cauliflower, cabbage, peas, beans, and other vegetables. The United States Fish and Wildlife Service states that cottontail rabbits travel only short distances. By trapping them alive and releasing them some distance away, a garden may be freed from these injurious animals and remain so for a season. Unless, of course, a neighbor catches his rabbits and lets them loose just over the fence, or if trapping happens to be in violation of local game laws.

Cottontails are active late in the evening, at night and early in the morning. During the day they hide in shrubbery, briar patches or other cover, thus making the garden in the vicinity of such cover more liable to rabbit injury. Rabbits usually enter a garden at a fixed place and to be effective, portable box traps must be set at such spots. The Wildlife Service also recommends the so-called Walmsley trap of sewer tile for permanent gardens, and its use by those familiar with the handling of animals. Information on trap construction and other matters of rodent control can be obtained from local county farm agents.

At present, control by fencing has been rendered more impracticable than ever through material shortages. At best, fencing out rabbits is practical only for small areas and when expensively installed. Another time-honored and effective device for ridding an area of rabbits is the small 410-gauge shotgun in the hands of a responsible person. As for rabbit repellents, about the best, of the many which have been tested, is a nicotine spray applied late in the day at intervals of a few days apart. Naphthalene flakes or tobacco dust scattered along the rows will also repel rabbits to a considerable degree. There are, also, commercial repellents available for use according to the manufacturers' directions. Preparations intended for use when plants are dormant may prove injurious when they are growing.

The foot-loose dog is about the worst garden nuisance in many congested areas. Doing anything drastic about the problem may lead to hard feelings because proceeding against a man's dog often has the effect of an attack upon the man himself, so close is the association between the two. Nevertheless, the hapless gardener whose plantings are trampled cannot be expected to be too tolerant and must take what measures he can to protect his plants.

Usually a dog will not return to a spot rendered unpleasant on a single occasion by the use of any one of the numerous repellents on the market. Such repellents, except for nicotine spray, are probably not suitable for direct application to plant parts intended for human food. Perhaps the best way to ward off neighborhood dogs is to keep a dog on the property. A fox terrier standing on his own land will successfully dispute the right of entry with a Saint Bernard. What his own dog does to his garden is a matter for each gardener to settle within his own household.

The domestic cat is another animal which bears the enmity of most conservationists. Not that a cat will do much direct damage to garden crops. Its chief nuisance value comes through its preying on birds which may help the gardener in his fight against insect pests. The household dog and commercial repellents both can discourage roving cats. The odor of fresh nicotine spray is also offensive to cats and will repel them from the plants or beds to which it is applied. Controlling the gardener's own cat becomes a personal problem.

Aside from the neighbor's chickens, which have given the newspaper cartoonists much cause for humor, the principal bird problem in built-up sections will come from pigeons. Farther out in the country the crows and blackbirds often cause trouble while seeds are in the germination stage. In town the trouble usually arises from too many pigeons, and should be attacked at its source by checking the rate of their reproduction. Little can be done in this direction unless all roosting and nesting places are eliminated, obviously, a nearly impossible task. Being town dwellers, pigeons pay little or no attention to scaring devices which, if changed frequently, frighten crows and blackbirds. The best method for protecting young plants against pigeons in small gardens seems to be covering with brush or poultry wire during the short danger period.

The best method for dealing with woodchucks, or groundhogs and with rats burrowing outdoors, seems to be the destruction of the animals in their burrows with fumigants. Gas treatment of woodchuck burrows during April, May and June may avoid killing other animals that may use the dens in Autumn and Winter. When using calcium cyanide, place one tablespoonful of the powder well down in the woodchuck burrow and close the entrance with a shovel of sod, grass-side downward. If the carbon bisulphide is used, pour three tablespoonfuls on rags, cotton, or other absorbent materials,

and throw or place it well down in the burrow; the opening should then be closed. Treat all holes in a den. Carbon bisulphide is inflammable and must be kept away from fire. Do not use either of these chemicals except in the open air.

Calcium cyanide can also be placed in burrows to destroy chipmunks. They can also be killed by placing poisoned grain near the burrows, although the practice is not popular or even legal in most densely populated sections. Poisoned bait placed under mats of hay in their runs will control field mice. However, in town, it is best to use ordinary mouse traps. Temporary repellents for gray squirrels suggested by the Fish and Wildlife Service are spraying with three ounces of epsom salts to one gallon of water or one teaspoonful of lysol to a gallon of water. Naphthalene flakes scattered along the garden rows have also given some success.

If skunks are numerous about a locality, it is well to seal all open spaces beneath the floors of garages, porches, and other buildings, to prevent the animals from living in these favorable places. Skunks are not efficient burrowers; hence they can often be discouraged from denning and driven away by making den sites difficult to find.

When skunks are found under buildings, they can usually be driven away by the use of repellents. The scattering about or placing in their dens or burrows of about a pound of naphthalene flakes or moth balls sometimes is satisfactory for this purpose. After their departure, seal their entrances with boards or wire to prevent their return.

The following simple, but effective way of removing moles from gardens is recommended by the Fish and Wildlife Service:

With a spade or shovel, stealthily approach their runways either early in the morning when the moles are quite active or after a rain, particularly a soaking one, when they are moving through the ground looking for food. Their presence will be revealed by the movement of the soil. A quick jab of the spade or shovel into the earth behind the mole, a swift upturning of the spadeful of soil and the animal lies on top of the ground and should be disposed of quickly.

Since several moles may be using the same system of runways, the ridges of earth should be leveled with the foot at intervals and the place watched daily to see if new workings appear.

Detection of active runways is easier if the depressed workings are marked at intervals with a spoonful of lime or flour.

Woodchuck Cartridges

THE United States Fish and Wildlife Service has developed a special woodchuck cartridge which when lighted according to directions and placed in a den mouth will diffuse a lethal gas throughout the den. A gardener need buy only enough cartridges to cope with the number of occupied dens near his plants, thus eliminating the often dangerous problem of storing leftover fumigants. These cartridges may be bought from county agricultural agents. Because of their nature the cartridges cannot be sent through the mails.

AIR, WATER AND ROOTS

ROOTS creep fast where the way is clear to search for food and drink. These two are, for all we need to know, one and the same, since plants assimilate only food that is dissolved in water. Their diet is washed off the mineral particles of the soil, oozes from rotten leaves and is lavished in fertilizer, scattered by the mastermind above ground, otherwise known as the gardener, ready for water to make a rich, nourishing broth.

Roots have power over moisture quite beyond their own grasp. Their suckers create tension. Remote water is dragged toward them as lemonade is pulled through a straw. This may work over a distance of several feet, which is reason enough for watering the ground far outside the probable location of the roots themselves.

Roots also require oxygen. They breathe while they work. There is more atmosphere in garden soil than is ordinarily supposed. Lack of air causes trouble in heavy clay and under pavements where aëration is impossible.

Air, water and roots should all move easily, which happens in a friable soil with "open texture," as the gardener calls it. He means that it is not clogged up by its own fineness nor loose as gravel. Heavy clay is bad. So is coarse sand through which water percolates too fast, carrying away all humus and other virtues. Water should move, which it cannot do in solid clay, but not rush as it cannot help but do in sand.

Lastly, good underdrainage prevents pockets of hidden stagnant air and water below ground. For they are poison to plant roots.

Each kind of plant—even each variety—has a normal depth beyond which its roots are satisfied not to go. Knowing this, we should be able to prepare our beds to please our plants. Unfortunately, there are no data on normal root growth and probably never will be. Too many variables are involved. Climate, humidity, exposure, soil, rainfall, and irrigation, change from one neighborhood to another and from front yard to back yard of the same place. General rules are all we can hope for.

Perhaps it is just as well. Too many facts would be discouraging. Now we walk where angels fear to tread, frequently with good results. Where is the help in knowing that "The roots of the Blazing Star in its prairie home may penetrate to a depth of 16 feet"* when we have a hard time preparing soil to a depth of 16 inches.

Good gardeners all want to prepare garden soil three feet deep in theory, but they cannot always do it. Cost in time, money and work are prohibitive. Nevertheless, we keep in mind that it is better to put a 50 cent plant in a five dollar hole than a five dollar plant in a 50 cent hole. Skimping soil preparation precedes failure and discontent in the garden.

—Fletcher Steele.

Boston, Mass.

*Salsbury, "The Living Garden," p. 103.

Garden Club of America

MRS. ALINE KATE FOX was re-elected president of the Garden Club of America at the annual meeting in New York. The other officers elected were: First vice-president, Mrs. Francis B. Crowninshield, Marblehead, Mass.; second vice-president, Mrs. Joseph M. Cudahy, Chicago, Ill.; third vice-president, Mrs. Frederick B. Brewster, New Haven, Conn.; fourth vice-president, Mrs. Hermann G. Place, Milbrook, Conn.; fifth vice-president, Mrs. Harry P. Peters, Islip, L. I.; recording secretary, Mrs. Gilbert Kinney, Greenwich, Conn.; corresponding secretary, Mrs. Barent Lefferts, St. James, L. I., N. Y., and treasurer, Mrs. Andrew Murray Williams, York Harbor, Me.

Medals were presented by the Garden Club of America to Louis Bromfield of "Malabar Farm," Ohio, for "Service and Conservation"; to Albert C. Burrage of Boston for his contribution to the field of victory gardening, and to Maunsell Van Rensselaer for his book of the Botanic Garden of Santa Barbara.

Goldenrod That Stays Put

I THINK that the goldenrod Golden Wings was introduced by Dreer some years ago but it is altogether too seldom seen. I consider it by far the best goldenrod, for the following reasons: The very stout stems rise to four or five feet and the very broad head of flowers is far larger than in any other goldenrod. It is extremely ornamental. Next and as important: This species has no runners and anyone who has fought the far-reaching spread of other goldenrods knows what this means. Instead there are short, compact outgrowths which never give the least trouble.

—Carl Purdy.

Ukiah, Calif.

LONG LIFE FOR HYACINTH PLANTINGS—

The secret seems to lie in generous feeding — a successful experiment

AN ATTRACTIVE display of hyacinths in a garden arrangement at the recent daffodil show of the Massachusetts Horticultural Society in Horticultural Hall, Boston, Mass., proved once more that hyacinth growing in American gardens has survived plant quarantines and war. Thoughtfully handled, hyacinths can, it appears, be as permanent in the gardens of this country as are tulips or daffodils.

It is true that not all known varieties are available at the moment or, for that matter, that hyacinths of any kind are not plentiful. Even so, John L. Russell of Dedham, Mass., was able to include in his show group such kinds as Lady Derby, pink; Myosotis, light blue; Grand Maitre, dark blue; King of the Blues, dark blue; L'Innocence, white; Marconi, rose-pink and Johan, light blue. Behind this exhibit lies a 15-year history of collecting a few bulbs one season and a few the next. Some of the original stock was of Netherlands origin and some came in from England within the past season or two.

As the bulbs became available over the years, Mr. Russell has been planting them in beds near his house. His system has been to heavily enrich the soil before planting with well-composted cow manure and to set the bulbs six to eight inches deep in this rich growing medium. As a result, his bedded hyacinths have never had a flowerless season. To encourage them he has annually top-dressed them with rotted cow manure in Winter and has picked off the faded blooms to avoid seed formation. In general, the bulbs have shown slight inclination to multiply. One variety—King of the Blues — has performed for Mr. Russell in this satisfactory manner for 15 years.

It was from among his garden plantings that Mr. Russell selected many of the bulbs which were grown in pots for display in Boston during the first week in May. After the foliage faded last Spring, the bulbs for potting were dug and stored in a cool garage, spread out thinly in flats along with those of tulips and daffodils. Most of them were as large as the second size of commercially produced hyacinth bulbs formerly imported from Europe.

Taken out of storage in September and potted singly in four-inch pots, the bulbs were then buried in open garden soil for the Winter. At the approach of cold weather, a mulch of fallen leaves was thrown over the spot where the pots were buried, thus preventing hard freezing. About the middle of April the pots were uncovered and some of them taken into a greenhouse to flower for staging at the show. Others which were left outdoors flowered just as well and fully as promptly. Since they came into bloom at their normal outdoor season, no forcing was involved in the preparation of these plants.

It was interesting to note that a few English bulbs which were treated in the same manner, but not potted until November, flowered at the same time as those potted two months earlier. Apparently, early potting had no beneficial effect. Also, the bedded bulbs threw up more, but thinner stems than the imported ones. The English bulbs displayed only one stocky flower stem to a bulb.

A major part of the secret behind this success story is the ample feeding accorded the bulbs from the start. The same idea has paid out handsomely in the large daffodil plantings which Mr. Russell has naturalized in grass land. When planting daffodils he has always worked in a liberal amount of bone meal beneath each bulb to act as a source of slowly available phosphorus, in addition to incidental nitrogen. Such preparation of soil for planting gives the bulbs a good start. However, the competition of the associated turf complicates the nutrition problem for the bulbs. Under such circumstances the feeding and general welfare of the daffodils is accomplished by indirect means. The grass is fed to relieve the competition and, in turn, to build up a husky late-season growth to die down, to act as a mulch in Winter and to decompose to the enrichment of the soil. When a crop of hay is removed from the turf cover for daffodils this feeding is especially important. Where all of the growth of the grass is permitted to decompose where it grows feeding is not imperative. Daffodil plantings 30 to 40 years old in sod in Plymouth, Mass., are flowering as well as ever because no plant growth has ever been removed from the soil during that time.

The grass in daffodil plantings can be fed with commercial fertilizers after the flowering is passed. Short of that, in wartime, animal manures will do very nicely. Thus the bulbs thrive not from direct nutrition, but as a result of being given a happy environment. What they must have, however, is an ample moisture supply during the time their foliage is green in order to build up reserves for another year. Also, nothing in the way of mowing or flower-cutting should be permitted to destroy those leaves on which the future health and vigor of the bulbs depends.

Tulips are almost always flower garden plants and are seldom required to compete with turf. They are subject usually to more frequent replanting in carefully prepared soil. Even so, they will react no more favorably to such abuse as premature loss of foliage or extremely dry soil conditions during their growing season.

Tulips which have been bedded for sev-

Properly handled, hyacinths will continue to bloom for many years.

eral seasons and are due for replanting are best dug shortly after the foliage ripens and stored promptly by spreading thinly in a cool, airy place for resetting in Autumn after sorting into even sizes. The European secret of keeping the skins or husks of stored tulip bulbs intact lies apparently in knowing just when to dig each variety and in the natural temperature of the section at digging time. Up until now, American-grown tulip bulbs have lost their husks, thus rendering them less attractive but apparently in no way disturbing their ability to grow and produce flowers.

About Plant Name Rules

GREAT confusion has resulted from the giving of new names to plant varieties without observing the rules which have been devised to obviate such confusion. These rules exist, having been agreed upon by botanists and horticultural experts of the highest standing. They are set forth in a comprehensive way, although in simple language, in the April 16 issue of "Arnoldia," the bulletin of the Arnold Arboretum, Jamaica Plain, Mass.

The bulletin is written by Dr. Donald Wyman of the Arboretum staff, who has done a real service by presenting these rules in this understandable way. By reading this bulletin even the amateur will become acquainted with the scientific methods used in selecting names for new horticultural varieties and hybrids and with the established customs to be followed in publishing these names. It is important that these fundamental rules should be understood.

Plants With Edible Roots

HAVING read about Psorolea esculenta I ordered some tubers, little potato-like growths from two to three inches long from the Middle West. In one year the roots increased five-fold. Psorolea is called pomme de prairie or pomme blanche by French Canadians and elsewhere prairie turnip, prairie potato or prairie apple. The roots can be eaten raw or cooked. Psorolea was and still is a favorite food of the plains Indians who dry it for the flour. The account of Lewis and Clarke's and Fremont's travels mention the plant. It belongs to the pea family and is fairly pretty with leaves divided into fives and blossoms arranged in thick cone-shaped heads that open gray-blue and fade to cream-white. In my garden the plants grew about 12 inches high.

A second American vegetable with tuberous edible roots is Apios americana, called wild bean or Indian potato. It grows from the Atlantic seaboard to Texas and is a twining vine of the pea family. The leaves are feather-shaped and the flowers grow in fragrant grape-like clusters. The tubers form strings and are similar to potatoes in shape, odor and taste. The seedpods, too, can be cooked with the seeds in them. In Massachusetts Bay Colony in 1654 a law was passed prohibiting Indians from digging the roots on land occupied by the colonists who had subsisted largely on them during their first Winter and continued to gather them years afterward. There must be many other legends and stories about these plants and it would be interesting to hear about them.

—Helen M. Fox.

Peekskill, N. Y.

The Perennial Gaillardia

THE hardy gaillardia or blanket flower rates high as a pretty, useful, easily grown perennial. It requires no expert care in sowing, bears transplanting well, and will thrive in any fairly good soil. It endures drought and prefers full sun.

No longer do perennial gaillardias come in one fixed color; they may be found in yellow, bronze, copper-color, or scarlet and in various combinations of these colors. They bloom from June to October if the seedpods are not permitted to form and are among the last flowers succumbing to Jack Frost.

Each flower lasts for several days and gives a dash of warm color when interspersed with other plants in the perennial border. The long strong stems and good-keeping qualities make them good cut flowers either alone or in a mixed bouquet.

—Ada B. Turner.

Wayne, N. Y.

Dainty Snowy Epimedium

WE HAVE found the snowy epimedium, also known as bishop's hat (E. grandiflorum niveum), an admirable plant for the rockery. It blooms early, and the pure white, delicate flowers last for a long time. They have prominent spurs, and are held in clusters of six or more in loose racemes on slender stems above the mass of pea-green foliage. The leaves are thin in texture, in clusters of three, are long-stalked and remain attractive throughout the season.

The plant has creeping perennial trunks and annual stems, and thrives in a woodsy soil, increasing from year to year. It is a member of the barberry family. It was Dioscorides who gave it the name of epimedium, because it was said to grow in Media, which was a fertile country, well peopled, and one of the most important provinces of the ancient Persian empire.

—Mrs. Frank W. Pugsley.

Pittsford, N. Y.

National Council Officers

AT THE annual meeting of the National Council of State Garden Clubs, Inc., just held in Chicago the following officers were elected:

President, Mrs. E. Wesley Frost, Fayetteville, Ark.; first vice-president, Mrs. William H. Champlin, Rochester, N. H.; recording secretary, Mrs. G. C. Spillers, Tulsa, Okla.; corresponding secretary, Miss Marcella Hayes, Muncie, Ind.; treasurer, Mrs. Randall D. Warden, Newark, N. J.

Regional vice-presidents to cover the country were chosen as follows:

Mrs. Warren W. Shoemaker, Illinois; Mrs. Levi P. Smith, Vermont; Mrs. Lewis M. Hull, New Jersey; Mrs. J. Kidwell, Kentucky; Mrs. Clarence Miller, Texas; Mrs. Walter Stadel, Kansas, and Mrs. S. A. Guiberson, Jr., California.

Forcing Scilla Hispanica

EVERY year I try out something different for forcing, and last October I bought some bulbs of Scilla hispanica in pink, blue, and white, and potted them in six-inch white glazed pots with five bulbs to a pot, mixing the colors.

On October 31 they were placed outdoors in a trench, with leaves tucked in around them, then a layer of sandy loam and more leaves packed in, and a thin last layer of loam. So that the ground would not freeze too hard, I turned a double seed flat on top and put a stake at each end to mark the place.

Snow and sub-zero weather came before we dug them out with a pick axe, in January. They did not bloom in time for the Spring flower show, but by April 20 there was one flower, or more, on every bulb. The mingled colors in cool white pots looked very dainty.

The white flowers are sweet-scented, which was a pleasant surprise to me, because I knew the blue and pink ones had no perfume. I have not seen the white ones growing wild, although I have seen acres of blue and some pink ones growing wild in English woodlands.

These scillas bloom for several weeks. Later on they will be planted outdoors, to flower beneath a young oak tree next Spring.

—Beatrice Haddrell.

Marblehead, Mass.

Preparing for Canning

IT SEEMS probable that there will be sufficient jars and rubbers for all home canning work this season. However, there should be no waste. A War Production Board order provides for the manufacture of certain types of jars and closures including top-seal metal lids for use on jars in which coffee and other grocery products came packed. The order says that jars and seals shall not be limited if for home use. Persons desiring to can home raised products for sale must, however, register and meet certain restrictions on number of jars and must meet grades and price ceilings.

There is no restriction on the number of tin cans that may be sold to home canners for home use.

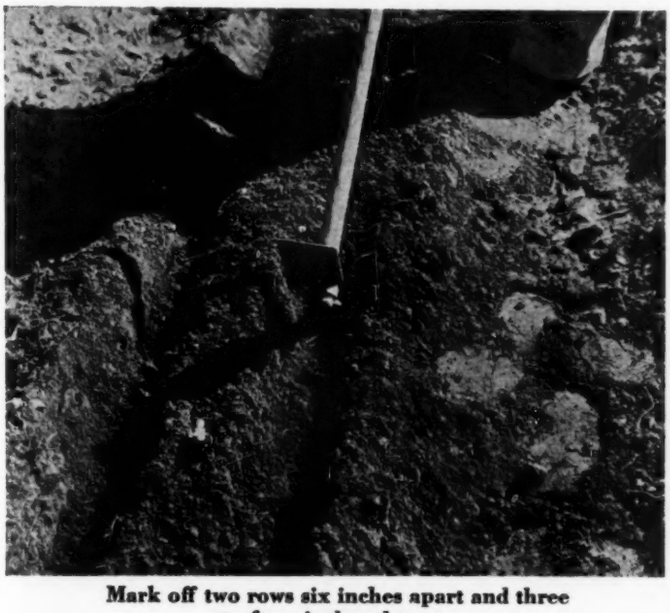
Improved Plant Feeding

THE first step in the economical use of fertilizer comes in the digging of the garden soil at the opening of the season. Any available manure, three or four pounds of victory garden fertilizer and, if necessary, five pounds of ground limestone can then be turned in on each 100 square feet of soil to the full depth of the spade. Properly limed soil so prepared should be fertile enough to carry most vegetable crops through to maturity.

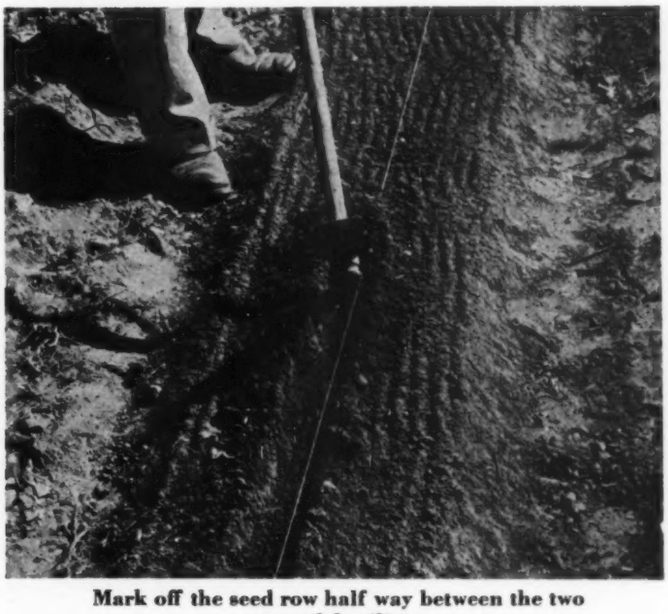
Surface feeding is, however, desirable to give the young plants a quick start. Dry fertilizer may be applied in narrow bands an inch or two out to both sides of each row and slightly below the depth of the seeds or roots. In narrow rows, three to four tablespoonfuls of victory garden fertilizer per 10 feet of row is usually enough. For wider rows the applications can increase proportionately but the bands should be farther away from the rows. The accompanying pictures taken at the North Carolina State College of Agriculture, Raleigh, illustrate the seed planting routine when this method is followed.

Plants set in soil which was not fertilized before digging can be side-dressed later in the growing season with a solution of a pound of victory garden fertilizer in two gallons of water. Some of the liquid fertilizer preparations on the market, if available, are more effective and only slightly more expensive than victory garden fertilizer.

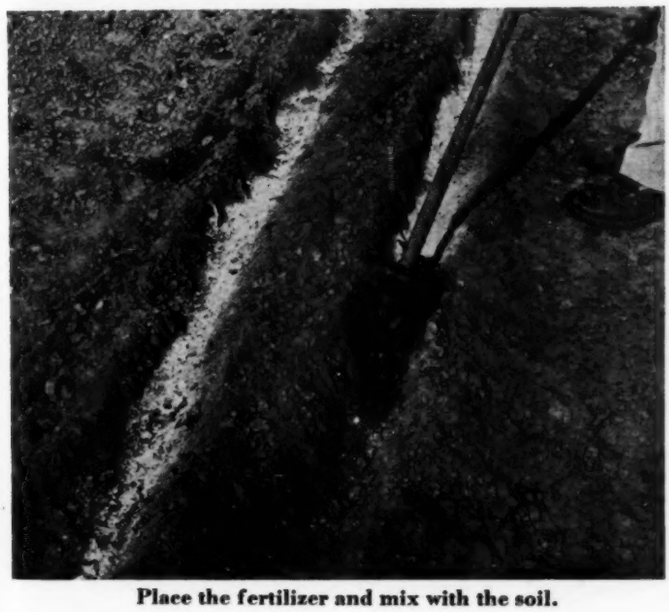
Level off the rows after the fertilizer has been placed in them.



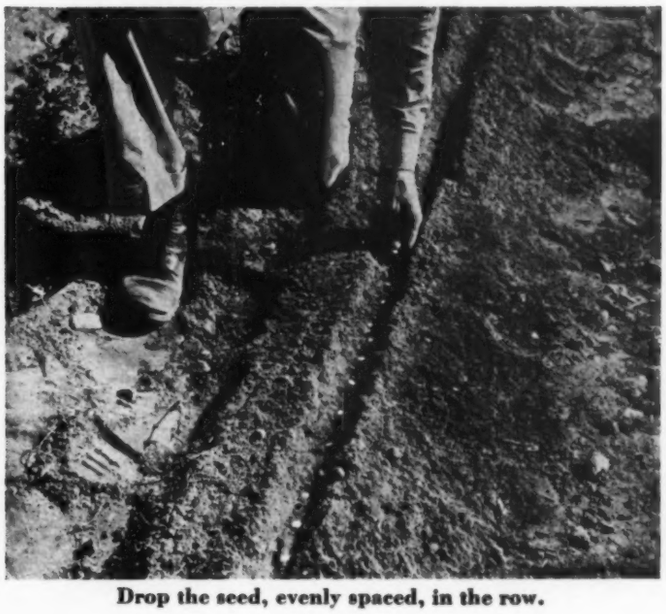
Mark off two rows six inches apart and three to four inches deep.



Mark off the seed row half way between the two rows of fertilizer.



Place the fertilizer and mix with the soil.



Drop the seed, evenly spaced, in the row.

INFAMOUS PLANTS AND WHY THEY ARE BAD

Characteristics of perennial or woody plants which make them undesirable in gardens or fields or by the roadside

MY LIST of infamous plants, as requested in *Horticulture* for December 15, arranged in accordance with my present opinion of their degree of infamy, number one being the most infamous. It is probable that at another time, I might change the order, depending largely upon how the plants happened to conflict with my own particular interests. Some of the plants are not altogether bad; they have their points of honor.

Rhus radicans (poison ivy). There are several factors that aid and abet the well-known poisonous quality of this subject and conspire to make it the arch perpetrator among plants of crimes against the unwary—Public Enemy Number One. It is very abundant, often obtruding itself in public places and where people spend their Summer holidays. Many do not recognize poison ivy when they see it, although they may know of its evil repute. In the Autumn, its foliage assumes the most glorious colors of the season, luring the unknowing to gather and embrace it, with disastrous results.

Ribes glandulosum (skunk currant). This is one of the hosts of the white pine blister rust and is very common over a large part of the natural range of the white pine. Its complete eradication seems to be required in order to save the white pine from wholesale destruction, such eradication being almost impossible of accomplishment.

Ambrosia artemisiæfolia (ragweed). Perhaps the most potent, as well as abundant, cause of hay fever.

Daucus carota (wild carrot). A widespread pest in hayfields, seriously impairing the quality and yield of hay. Were it not so common, the flower would be highly prized. It is very beautiful, especially in combination with some other flowers such as the Shirley poppy.

Prunus virginiana (common chokecherry). Host of the X-disease of peach trees, which are threatened with extermination where this plant grows nearby.

Lonicera japonica (Japanese honeysuckle). New Englanders unacquainted with its pernicious, weedy character elsewhere may be surprised at its inclusion in this list. From New York southward, along the seaboard, it is a pest of the worst kind, especially in certain woodlands, climbing all over in its disfiguring, clumsy way, robbing the scene of much of its charm. At times, it serves one important purpose: that of holding embankments, for which it has been extensively planted.

Digitaria sanguinalis (large crabgrass). A lawn pest which is difficult to eradicate.

Digitaria linearis (small crabgrass). Grows in association with the foregoing and from which many people do not distinguish it, since the two plants look very much alike. The small crabgrass is, perhaps, the more pernicious of the two weeds.

Eichornia crassipes (water-hyacinth). A serious impediment to the navigation of streams in the Far South, especially Florida.

Polygonum cuspidatum (Japanese fleeceflower). This husky, coarse, but rather attractive plant, once introduced on a place, can never be gotten rid of, and it is likely to bob up all over the lot most obtrusively and to cause much trouble. But for this pernicious habit, it would be a most welcome addition in planting effects. It is occasionally offered by nurseries—which act is almost criminal.

Rhus vernix (poison sumac, sometimes called poison dogwood). This is, perhaps, more poisonous than poison ivy. Similarly, its foliage assumes a brilliant autumnal coloring, and is then occasionally gathered in ignorance with disastrous results. Unlike poison ivy, it usually has the grace to restrict its presence to places not very often frequented by humans. It prefers swampy areas of just the right kind, being very choosy in this respect, such as rich, part-time swamps, frequently in association with red maple and pin oak. Were it as ubiquitous as poison ivy, it might even outrank that plant in infamy.

Agropyron repens (quack grass, quitch grass, witch grass). A most exasperating obstacle for the cultivator of the soil, universally recognized as such.

Trapa natans (water-chestnut, water-caltrop). In the Potomac River, near Washington, this plant seriously interferes with the progress of small power boats and threatens eventually to play the role filled by the water-hyacinth in Florida.

A species of Datura, probably D. stramonium (Jamestown or Jimson weed, thornapple). Children have died from eating parts of the plant. This happened not so many years ago in Dorchester, Mass.

Eupatorium rugosum (snow thoroughwort, white snakeroot). Following is a quotation from the "Rural New Yorker" of May 8, 1937.

From this innocent looking plant a poisonous principle called trematol has been extracted, a chemical that not only poisons livestock but in addition may enter the milk and cause human disease known as milk sickness. This is believed to be a malady that decimated the pioneer population of the Ohio River Valley during the early days, and it is held responsible for the death of Nancy Hanks, the mother of Abraham Lincoln. Even to this day although most of the land has been cleared some human deaths occur every year from milk sickness.

This list could easily be extended, by half a dozen or more plants.

—Hans J. Koehler.

Marlborough, Mass.

A Second List

WHEN we started a naturalistic garden featuring wild flowers and ferns over 20 years ago, we learned by experience that it was best to leave certain plants to beautify their natural habitat. The greater part of the material brought in from wood, field and wayside still abides with us and we have derived much pleasure therefrom, but a few proved to be nuisance plants and had to be eradicated.

Herb Robert (Geranium robertianum) pretty as it is with its reddish-purple flowers and daintily-cut leaves spread most persistently, but was finally rooted out.

The pure white flowers and attractive foliage of the tall anemone (Anemone virginiana) intrigued us, but the wind blew every seed of the thimble-like fruit all about the garden and the plants appeared everywhere. It took three minutes to set the first plant, and three years to get rid of its progeny.

We were kept from bringing in bouncing bet (Saponaria officinalis) by a friend who knew of its proclivities through experience.

Perhaps the most aggressive was the orange hawkweed (Hieracium auranticum), which spread all over the place: we were a long time ridding the garden of this pest and its sister plant the yellow hawkweed.

Dame's rocket (Hesperis matronalis) we first saw on the border of a woodland, where it had formed a large colony; hovering above its fragrant pink blossoms were scores of butterflies as well as a small hawk moth that looked like a cross between a humming bird and a bumble bee. We never forgot the sight, but the plants proved too aggressive when taken into the garden.

The Chinese lantern plant (Physalis alkekengi) we had to pull out root and branch, and it was several years before we saw the last of it.

As the worst of the poisonous plants we would nominate the poison sumac (Rhus vernix) sometimes known as poison elder and poison dogwood. A friend who tried to eradicate it from the swamp on his farm by cutting down and burning the bushes in the Winter was terribly poisoned by the ashes which the wind blew against his face and hands. Fortunately, Rhus vernix is a species confined to swamps. The upland sumacs, other than poison ivy, are non-poisonous.

—Mrs. Frank W. Pugsley.

Pittsford, N. Y.

A GARDENING DIGEST

Preventing Sprouts on Stumps

THE stumps of fruit trees from which the limbs were cut the past Winter will put out new branches to interfere with cultivation and serve as a potential source of insect infestation unless treated to prevent new sprout growth. George Sister and W. J. O'Neil have reported in *Better Fruit* that one of the most effective means for killing the stumps and preventing sprouting is to burn the stumps following a spraying with stove oil. Their method is to dig around a stump with a shovel or hoe to a depth of about two inches, thus uncovering the crown from which most of its new growth starts. The oil is then sprayed over the stump with a small knapsack sprayer. When ignited, the oil will burn with intense heat for a few minutes. Two cents' worth of stove oil and five cents' worth of labor applied to each stump in this manner can save greater expense and much bother later on. Presumably, this technique has value in dealing with live stumps of other than orchard trees.

Drying Pods of Snap Beans

DR. J. S. CALDWELL of the United States Department of Agriculture has found that certain varieties of snap beans can be dried in the pod if picked when the seeds have reached the size of the head of a strike-anywhere match. Picked larger, the pods tend to become woody when dried.

As reported by *Seed Trade News*, Dr. Caldwell has found that of the 14 varieties tested for drying qualities, six stand out in color, flavor and texture when freshened and cooked. He lists Arrow Stringless Green Pod, Lazy Wife (a pole variety long grown under the name of "Black Cornfield") and Stringless Kidney Wax, as being superior for drying. Good but slightly lower in table qualities are the dried immature pods of Bountiful, Stringless Valentine and Dwarf Horticultural.

Fertilizer From Sewage Wastes

ANALYSES made at the Connecticut Experiment Station show that the dried digested sludge now available from numerous municipal sewage plants contain 1.7 per cent nitrogen, 1.5 per cent phosphorus and a slight amount of potash. This material, which compares favorably with ordinary barnyard manure is black in color, homogeneous and of flaky consistency. Its odor is described as tarry and not offensive.

From the health standpoint the digested sludge is safe for use as fertilizer with all crops if applied at least two months prior to planting. The only cautionary measure is to avoid its immediate use on carrots, radishes, lettuce and similar vegetables that grow in close contact with the soil and are eaten raw. It may be used on tomatoes if the plants are staked. Because of these restrictions, it is not suggested for the small home garden, but for use with crops like potatoes, corn and other field crops. Ten bushels of the sludge plus 20 pounds of 3-8-7 fertilizer per 1,000 square feet is a fair application. Like manure, the sludge should be spaded into the soil. It can be used on ornamental plants as well as on the vegetable garden, and as a top dressing on the lawn in the Fall.

Digested sludge should not be confused with raw sludge, which is watery, lumpy, offensive in odor, and not recommended for use in any manner. On the other hand, dried activated sludge is prepared by a different method and is perfectly safe to use on any crop. It is in a granular form and contains up to six per cent nitrogen. Some large cities sell this form under trade names such as Milorganite from Milwaukee, Indus from Indianapolis, Humite and Turfood from Charlotte, N. C., and Rapidgro from Grand Rapids.

Bombs for Control of Insects

A RECENT report by the United States Department of Agriculture gives a glimpse into the future of control of mosquitoes, flies and many other household insects and greenhouse pests. As noted in preliminary reports in 1941, such pests can be controlled by an insecticide material with an activator, dissolved in a highly volatile solvent which propels and atomizes the insecticide into a fog. Such preparations come in containers which keep the mixtures under high pressure ready for instant release.

The solvent evaporates almost instantly, leaving the infinitesimal particles of the insecticide suspended in the air as an aerosol. This fine suspension is nontoxic to man and animals and nonflammable, but highly toxic to insects—so toxic that it acts with the speed of a gas fumigant. It is as if the very small pieces were able to seek out the pests in every smallest nook and cranny of a room or tent where droplets would not float. Various insecticides have been so prepared.

Protecting Indoor Seed Sowings

W. L. DORAN, E. F. Guba, and C. J. Gilgut of the Massachusetts Agricultural Experiment Station find that formaldehyde in low concentrations can safely and effectively be applied to soil immediately after vegetable seeds are sown indoors. The method is simple and economical, for the soil usually needs to be watered at this time anyway, and there is, except for the adding of formaldehyde to water, no extra operation involved.

Damping-off of a number of species was well and safely controlled by one teaspoonful of formaldehyde solution in one gallon of water (one tablespoonful in three gallons) when soil was watered with it after seeding. Up to two teaspoonfuls per gallon did not injure beets, cucumbers, peppers, but, one teaspoonful formaldehyde per gallon is as much as is recommended.

These methods are not recommended for use with members of the cabbage or mustard family, for they are too susceptible to injury by it; but, for use with other commonly grown vegetables, these methods are safe providing a few simple precautions are taken. Seeds should not be soaked in water before planting; the formaldehyde solution should not be too cold, not below about 50 degrees, when applied to soil; and the treated soil should not be covered, as with burlap, since that would retard for too long the escape of the formaldehyde in gaseous form.

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From a bulletin of the Extension Service of the Massachusetts State College.

THE VICTORY VEGETABLE GARDEN

Three Long Season Greens

BROCCOLI probably will find itself in many home gardens for the first time this season. It is being recommended by nutrition experts as well as by garden authorities as a much better vegetable for the amateur than cauliflower. Broccoli is rich in vitamin A, which its better known relative contains in small measure. Broccoli is much easier to grow than cauliflower, with no necessity for tying up the heads.

Broccoli is grown for its edible buds and care must be taken to gather these buds before they open. They have a delightful flavor and are easily prepared for the table, usually being served with a hollandaise sauce. Often the tender stem and some of the leaves are served at the same time.

Broccoli is essentially a cool weather crop but in the North will produce all Summer if the buds are kept cut off before they open. Started plants may be purchased and set out as soon as the danger of frost is over, and when this is done the first crop should be ready by the middle of June. Seeds may also be sown outside in May, June or July. Farther south, these later plantings are likely to be the only ones, the object being to obtain a long season in the Autumn. Broccoli plants should stand about 18 inches apart in the rows with two feet between the rows in the home garden.

Swiss chard is another green which is being advocated by both nutrition and garden experts for general planting this year. The amateur should remember, however, that only a short row is necessary, as the plants themselves are not disturbed throughout the season, the tender young leaves being removed for table use as fast as they develop. A row of 15 to 20 feet long is enough for the average family and cropping should start in late June if seed is sown as soon as the ground is ready.

The seed should be sown sparingly and the plants thinned to three or four inches as soon as large enough. More thinning will be necessary later, but the plants should be kept down to a foot in height. Only the young leaves are satisfactory and if all of them cannot be used, the others should be pulled off and put onto the compost heap. This is an easy crop to grow, being handled the same as beets.

New Zealand spinach is another long-season crop, only three or four inches of the tips of the stems being used. Unused tips should be cut off and composted. Thin sowing should be practiced and considerable space will be needed for the mature plants.

Tomatoes in War Gardens

TO STAKE or not to stake is one of the questions that arise in the mind of the gardener about to set out tomatoes. It is important to decide this matter at planting time in order to space the young plants properly. Unstaked plants are spaced three by three feet, or better still three by four feet. Staked plants are set much closer, one to two feet apart in rows three feet apart.

Actually the decision on staking must be based on a choice between early fruits and quality fruits, according to experiments at the agricultural experiment station in New Haven, Conn. A tomato plant sets and ripens fruits first on its central shoot. Since there will be three to four times as many staked plants with main shoots to a given ground space, they will yield that many more early fruits than unstaked plants. However, because a large part of their foliage is lost through the pruning, the quality of the fruit on plants trained to one stem is often inferior to that from plants allowed to grow naturally. The loss of foliage exposes the fruits to the sun and wind, causing them to suffer from blossom end rot and cracking.

Because many more staked than unstaked plants can be grown in a given space, some people assume that they can produce more tomatoes by staking. Experimental evidence has proved this assumption untrue. More early fruits can be picked; but, later in the season the unstaked plants will yield fruits on their side shoots.

To stake tomatoes to a single central stalk train the plants by breaking out all side branches when these are about one and one-half inches long. These side shoots are found in the axils formed at the junction of the leaf and main stem. The side shoots should not be confused with the leaves along the main stem, all of which should be retained. Strips of rag or raffia can be used at six-inch intervals to tie the plants to the stakes. As the plants grow during the season, more tying will be necessary to keep the plants from breaking over. Stakes should be stout, and five to six feet long.

Many gardeners compromise between flat culture and single-stemmed staking by training two or three stems per plant rather than one and by not pruning late in the season after the plants have grown to the height of their supports.

A light application of fertilizer can be given tomato plants when they are set out. A teaspoonful of commercial fertilizer — 3-8-7 only is available this year for home gardens — can be put in each hole and mixed well with the soil to prevent its coming into direct contact with the plant roots. Later in the season, when fruits begin to set, about a pint of fertilizer per 20-foot row makes a good side dressing. This can be scattered between the rows and raked in. However, it is a still better plan to use a "starter" solution at planting time and a liquid side dressing later.

Rotenone Regulations

VICTORY gardeners who buy rotenone preparations in amounts of one pound or one pint or less need no longer restrict the use of these materials to the control of specific insects on specific vegetable plants. Moreover, the War Production Board is no longer requiring the purchasers of such small quantities to submit a signed application. However, the regulations as reported in *Horticulture*, March 15, 1943, still apply to buyers of amounts larger than a pound or a pint as regards both restricted use and declaration of purpose for their purchase, and the material must in all cases be confined to food crops.

Rambling Observations of a Roving Gardener

I AM about to make a planting of a number of varieties of hybrid sweet corn developed by Donald F. Jones and his associates at the Connecticut Agricultural Experiment Station. These hybrids have now been bred to a point where it is possible to include several varieties in a single planting and have them come to maturity in succession over a relatively long season. My reason for making the planting now is that in Connecticut, it has been found that such a planting made about the middle of May will largely escape the ravages of that serious pest, the European corn borer.

The principal advantage of hybrid corn is its increased vigor and more uniform production from each plant. In addition, all of these hybrids display an inherent resistance to bacterial wilt. The breeding of smut-resistant sweet corn hybrids is now in progress.

Apparently, many other gardeners have also been waiting for such a development, since no fewer than a million pounds of seed of these Connecticut hybrids were produced commercially in 1941. The breeding of hybrid field corns is, of course, a much vaster undertaking.

HYBRID corn represents one of the really great strides forward in American farming and vegetable raising—as well as in scientific knowledge of inheritance and variation in plants. We all talk about hybrid corn or read of it in our seed catalogues, and we know that it can increase the per acre production of healthier corn. How many of us, however, really know what it is all about, or that despite all of the dramatic stories about isolated farmers starving for years, mortgaging their homesteads and shedding the ridicule of their neighbors, the real originators of hybrid corn were such pure research men as the late Dr. E. M. East of Harvard and Dr. G. H. Shull of Princeton. Dr. East's work, started at the Connecticut station, has been continued by Dr. Jones and put in practice by many others, not forgetting the present vice-president of the United States.

IF ANYONE were to set out to develop a corn hybrid from scratch, here is about what he would have to do. First, he would pick out certain promising plants well adapted to the area in which he is working. (A hybrid corn may not do well everywhere, since it is probably adapted to local conditions such as soil, rainfall and length of season.) He would inbreed these parent plants—that is, self-pollinate them for seven or eight generations.

In the process, many undesirable seedlings would be discarded, or weak ones would die. Also, he would witness a reduction in size of plant and in yield for the first two or three generations, after which the size would remain constant. He would keep on until he had a group of probably, midget plants, which, when self-pollinated, would not vary from one generation to the next. He would then start crossing these low-vigor plants to determine those which, when mated, would give progeny capable of high yield and combine in a single plant the desirable qualities of the parents.

AT THIS point, something really marvelous may happen. Hybrid vigor may enter the picture. That is, crossing two apparently weak, low-yielding, inbred parents sometimes gives seed which produces outstanding yields of great uniformity on very strong-growing plants. Seed produced in one year from the crossing of but two inbred parents is known as a single hybrid.

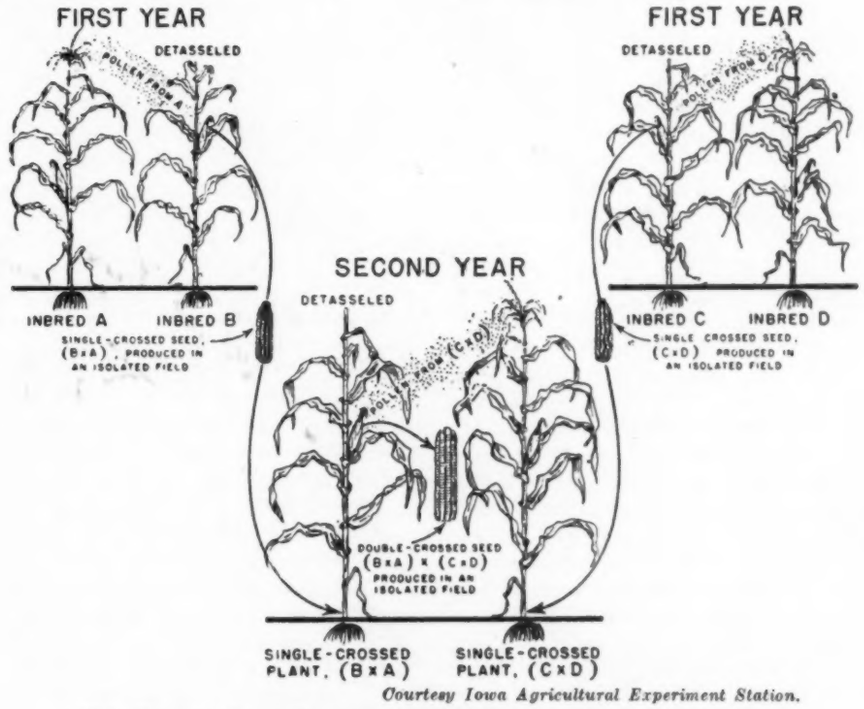
This hybrid vigor is not a fixed trait. With the resumption of natural variation of seedlings of mixed parentage, there may be a decrease in the next year's yield of as much as 15 to 25 per cent. It is important, therefore, that I do not save seeds from hybrid corn in my garden. I must buy new seeds produced by plant breeders who keep on growing the inbred parents and making the same crosses over and over, so that I may have a sowing of hybrid seed every year.

THERE is, however, a hitch in this process when it comes to broad field culture. In order to get a lot of hybrid seed, it is necessary to have a lot of inbred parent plants, and the inbred parents do not seed very freely. Also, their seed is often irregular in shape and hard to plant evenly by machinery.

In order to get around these difficulties, the so-called double hybrid is frequently resorted to when quantity production is desired. Inbred seedlings A and B, for instance, are crossed and, at the same time, C and D are crossed. In the accompanying diagram it will be noticed that the female parent of a cross is stated first.

The next year, the A x B corn is planted in the same field with the C x D corn and they are crossed by taking the tassels out of the one which is to bear the seed ears, of which the planting naturally contains the larger number of plants. In this manner, large quantities of fairly cheap seed of a high-yielding, reasonably uniform seed corn are produced. Here, also, the crosses have to be made over again each year on plants grown expressly for the purpose.

I have retold this story to bring out some idea of the knowledge, years and trouble involved in the production of only one of the items which we read about in our seed catalogues. If varieties are not carefully guarded by the constant attention of skilled plant breeders, I may, in a few years, find myself planting something quite different from the original state in which they were placed on the market.



Courtesy Iowa Agricultural Experiment Station.

This diagram shows the manner in which corn is crossed to produce single and double hybrids.

Readers' Letters to the Editor

The Hot Water Treatment

DEAR EDITOR—I know that you are interested to learn how my African violets are responding to the hot water treatment suggested by Elizabeth Brenner in *Horticulture*, April 1, 1943. Acting on that suggestion, I started to give my plants the hot water treatment every second day. To my surprise, plants which were growing well but refusing to flower are now forming bloom buds. The apparent influence of hot water given at the roots is indeed astounding.

—John Spislander.

Trenton, N. J.

Pruning Clematis Paniculata

DEAR EDITOR — In the April 1 number of *Horticulture*, I saw a note on pruning Clematis paniculata. Many years ago, I read that this vine should be cut down to about 18 inches in the Fall. We have always followed this method. When the garden is cleared for the Winter, the growth of the season is taken off the trellis entirely and the vine cut short. In the Spring, there is no dead wood to cut out. It makes an entirely new growth and is so vigorous that some of the shoots must be removed. These are old vines and have been transplanted. The bloom is very abundant each year.

This method obviates a lot of work in the busy Spring days.

—Mrs. N. D. Garnsey.

Kinderhook, N. Y.

Habits of the Chayote

DEAR EDITOR—Aggeler & M. Co.'s chayote illustration (*Horticulture*, April 1) is not entirely correct. Nurseries here are unfamiliar with the growing habit of chayote. Lack of knowledge has kept this meritorious vegetable from wider cultivation. Chayotes reach the market in the most tender, half-ripe stage, useless to plant for propagation.

At the beginning of ripening, a tongue-like, wedge-like growth starts to protrude from the deep fissure at the lower, larger end of the fruit. Unless it has emerged slightly (not even visible in the deep fold) no growth can develop.

If the chayote is left on the vine to ripen properly, the above mentioned protrusion will grow out to about one inch and develop at the tip junction a wart-like nipple. Behind this nipple sprouts will grow, from either side or from both sides. The very tip of this nipple has a rough surface and it is from this surface only that roots grow; this surface layer is eagerly attacked by snails, sowbugs, etc., which generally eat no other part of the plant. If this root-producing layer is entirely eaten away, no roots will grow from it, but the vine may on planting develop adventitious roots or exhaust itself. Should this nipple touch a damp spot, an old leaf, or touch ground, it will send out roots at once in great numbers. (This process of a fruit growing while still attached to the mother plant seems rather unique.)

The rather slender stem holding the fruit to the vine loses its strength at this stage and the fruit, with its shoots or sprouts, drops, commonly landing fairly upright in the mass of dead leaves, and starts at once on its own. Should the sprouts be damaged, they will renew themselves repeatedly.

—Joseph Schneider.

San Gabriel, Calif.

Very Early Crocus Blooms

DEAR EDITOR — In your issue of March 15 one of your correspondents asks "Is not February 23 a record for crocus to bloom in Massachusetts?"

I find in my book the entry February 13, 1936, "Crocuses in bloom, also jasmine"; and January 30, 1937, "Crocus in bloom." That January, 1937, was the very warm January and most unusual.

—Frances E. Cunningham.

Brookline, Mass.

Peach Recommendations

DEAR EDITOR—I cannot agree with the recommendations of peach varieties in the February 15 number of *Horticulture*, all these varieties being market kinds valuable mostly for canning. If quality is the chief consideration, such varieties as Mountain Rose, Goldsboro, Carman and Champion are much better.

If I were to recommend only one variety, it would be Champion, which is very large in size, beautiful in color, aromatic in odor, juicy, and exceptionally high in quality. Generally speaking, the white varieties are better for home use than the yellow kinds.

It is quite natural that the marketmen should grow only the varieties which will "stand up" well, meaning that those will keep well when shipped. Usually the kinds having the best quality are not in this category. Thus one seldom sees Worden grapes, Jefferson plums or Champion peaches in the market.

—Walter G. Kendall.

Atlantic, Mass.

Horticulture May Be Late

IN common with all magazines which go through the mails, *Horticulture* is likely to be late in reaching its readers. The date of delivery is also likely to be irregular. This condition is caused by transportation difficulties and delays in the postal department. The publishers regret that this condition exists, but they cannot be blamed for it and trust that their readers will be as understanding and tolerant as possible.

Garden Misinformation

DEAR EDITOR—It seems too bad in these days when vegetable gardening is so important and when there are so many eager enthusiasts who know less than nothing about gardening that so much misinformation about gardening should be disseminated.

Reports from seed stores show that amateurs are going haywire in ordering their seeds. One recent report showed that a customer had ordered eight pounds of beans and planted a 50-foot row.

Practically every planting list shows a pound of snap beans as the quantity to plant for every hundred feet of row. As this is about four times as many as I have used, I did a little checking. Nissley's book on Vegetable Growing says that there are 85 snap beans to the ounce. By actual weight, using delicate postal scales, there were 85 pencil pod wax beans to one ounce. That makes 1,360 to the pound or 1,360 beans to be planted to 1200 inches. The average measurement of this variety was one-half inch, so that if you followed instructions and planted a pound to a hundred feet of row you would plant the beans approximately three-eighths of an inch apart. Minimum germination is something like 85 per cent.

Planting tables vary in distances apart from two inches to four inches. I have found three or four inches about right.

If there are 18 million gardens in the country and if each garden averages a pound of beans, which is not too many for a fair-sized garden; or, put it this way—if each garden averages a hundred feet of row, which certainly is not too many, and they buy according to the seed tables, then they are buying one pound instead of a quarter of a pound or, possibly, a half a pound for that garden. Let us split the difference and say they need a third of a pound. Then the other two-thirds of the pound is wasted. Take your pencil and paper and figure what two-third of a pound for each of 18 million gardens amounts to in waste.

—Louis E. Tarr.

Syracuse, N. Y.

Fruit Growing Questions*

GRAPES

Q: What varieties are recommended?

A: Fredonia, Ontario, Delaware, Worden, Niagara, Brighton, and Concord. The Concord variety should be planted only where the season is sufficiently long to permit the grapes to ripen before the first frost.

Q: How should grape vines be supported?

A: Most growers prefer a wire trellis made by stringing two wires at heights of about three and one-half and five feet above the ground. Various kinds of arbors are also used successfully.

Q: What is the proper planting distance for grape vines?

A: The vines should be planted not less than eight feet apart in the row with rows at least eight feet apart.

Q: What kind of fertilizer should be used in the vineyard?

A: Enough fertilizer or manure should be used to stimulate good vine growth each year. A pound of nitrate of soda per vine will often greatly increase yields. If the vines are producing canes one-half inch or over in diameter, no fertilizer may be needed.

Q: How much spraying or dusting is needed?

A: At least two or three well-timed spray or dust applications. For details, see spray programs recommended by the nearest experimental station.

Q: How important is pruning?

A: A thorough pruning in early Spring results in larger, better filled clusters of grapes. About 50 fruit buds are usually enough to develop a good crop.

BLUEBERRIES

Q: What varieties are recommended?

A: Cabot, Pioneer, Rubel, and Wareham. (In order of ripening.)

Q: What are the soil requirements of the blueberry plant?

A: The soil must be continually moist without being poorly drained. A permanently moist layer of soil should be within reach of the shallow root system. Blueberries require an acid soil.

Q: Are blueberries practical for the average home planting?

A: They are reasonably promising for both fruit and ornamental purposes if soil conditions are favorable. A dry, gravelly knoll is entirely unsuited for blueberry growing.

Q: How should a blueberry plant be pruned?

A: By a gradual removal of the older growth. For details, see Bulletin 358, "Blueberry Growing in Massachusetts."

Q: Do blueberries require cross pollination?

A: Most varieties are inclined to be self sterile and for that reason two or more varieties should be planted.

BLACKBERRIES

Q: Are blackberries recommended for the home planting?

A: If ample space is available and if the planting is kept under control, blackberries may be worth while in the home garden. The culture is similar to that of raspberries.

*From a bulletin of the Massachusetts State College.

Long-Rooted Cinnamon Vine

WHILE enlarging our flower border last Fall, it was necessary to transplant what I thought was a small cinnamon vine tuber. When I planted it five or six years ago by an Osage orange post, it was about the size of a sparrow egg. It had grown closely to the post, so closely in fact, that it was shell-shaped and nearly an inch in thickness. After about 12 inches of the tuber had been exposed I thought I could pull it out, but there seemed to be no end to it. Deeper and deeper it stretched, always encircling and very closely hugging the post, sometimes even growing under the bark half way around the post.

When I finally removed the last piece of this potato-like tuber, I found that it measured 31 inches in length. In disentangling it from the post it was broken several times. Whether or not these pieces will produce new vines remains to be seen. The Chinese use these Dioscorea batatas tubers like potatoes. One species, Dioscorea alata, is said to bear tubers up to eight feet in length and weighing as much as 100 pounds.

—Madeline J. Nieberding.
Marysville, Kan.

A Long Phlox Season

SOME garden makers have a plan of prolonging the blooming period of phlox by lifting alternate plants early in the Spring and resetting them again in the same holes after putting a little compost or a mixture of earth and manure in the bottom. This lifting of the plants delays the flowering season a week or 10 days. The season is extended also by a choice of varieties which bloom early and late. Some kinds, like the Arendsi hybrids, are in bloom by the end of June. They are not so fine as the later kinds, however, and as June always has an abundance of blooms in variety, these early border phloxes are not very much in demand. Soon after the first of July, however, Miss Lingard starts to flower, and then the phlox season is really on. Miss Lingard is a variety which deserves a place in any collection, apart from the fact that it is very early. The foliage is large and glossy, and quite different in shape and appearance from that of most other phlox varieties.

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Success With Gloxinias

GLOXINIAS require only the simplest care and treatment. For a succession of flowers, tubers may be planted at two-week intervals from February until late May. Pot them in good sandy loam (two parts good garden soil, one part sand and one part leaf mold or peat is very good). Be sure the soil is taken from a spot where no gladioli have been grown, for gladiolus thrips are a serious menace to gloxinias. Planting a tuber so that its surface is covered or exposed seems to make no difference. However, if a plant becomes spindling it is good practice to repot it, planting it more deeply.

After potting, water a bulb sparingly and set it in a warm, sunny window. An east window is ideal. Behind a thin glass curtain in a south window is excellent. A branching, leafless tree outside the window also makes just enough shade to make a south window ideal for the growing plant. Direct sunshine will cause the flowers to wither in a short time but out of the sun each individual blossom will last ten or more days.

Gloxinias cannot stand quite as severe temperature changes as geraniums, but they can endure much more than saintpaulias. Florists force gloxinias at 80 degreens, which is doubtless the temperature in the sunny windows in the living rooms of most homes. The drop of temperature at night should not be to below 60 degrees. A weekly bath is beneficial until buds appear, after which the leaves should be sprayed thoroughly. The foliage should be dry before a plant is returned to a sunshiny place because a drop of cold water left on a leaf will cause an unsightly hole or a brown spot to form.

After flowering is completed, gloxinias should be watered sparingly until they show a tendency to go dormant. This may take from two to four weeks. Then store at 45 or 50 degrees temperature until growth starts in Spring. However, all tubers do not stay dormant and any that show growth should be repotted, watered and brought into flower regardless of time of year. Anyone who has several dozen tubers may thus have gloxinia blossoms at any time.

A gloxinia may be propagated by either a leaf or slip of the mother plant. These may be rooted in soft water in a glass in a light window, or in damp sand. It may take weeks or even months and many a promising young tuber has been thrown away because it was so slow putting forth growth. Leaves rooted and planted in Fall may remain dormant all Winter.

Propagation by seeds is thrilling, for all kinds of colors of gloxinias may be expected from a package of seeds. Put a layer of small pebbles or charcoal in the bottom of a tin can or pan. Cover with finely sifted sandy soil and after sowing the tiny seeds cover with a light cloth. Cover the top of the pan with a piece of cellophane fastened with a rubber band, or with a

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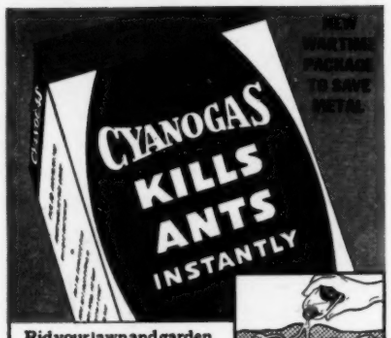

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pane of glass. When the seeds germinate, remove the cloth but leave the cellophane or glass in place. Germination takes place from 10 to 15 days after the planting of the seeds.

As the plants get an inch or so of height, prick them out, using a hairpin or pair of forceps. Watering of these tiny plants must be done very carefully. A medicine dropper may be used, but the safest method is to water them from below. It is well to cover the seedlings every night with the glass or cellophane to keep the temperature uniform. Seedlings which die down may be only dormant and may come up after a time with much more vigorous stem growth than before.

—Ethel T. Crisp.

Deep Rapids, S. D.

Peat Moss and Roses

THE use of peat moss in the rose garden at this season will help to do away with much cultivation and will make less watering necessary. It serves to keep the weeds down and retain the moisture in the soil. Yet there is a possibility of too much peat moss being used. An excess will make the ground spongy or fluffy so that it will actually dry out quicker than when no mulch is used. It also has a slight tendency to make the soil sour, and for that reason a light application of lime should be made every three or four years, being applied either in the Fall or the Spring. Another important matter to remember is that the beds should be thoroughly soaked with water before the mulch is applied. Then another application of water can be made to wet down the mulch so that it will not be blown about.

Germination of Small Seeds

THE use of grass clippings is very helpful in increasing the percentage of the germination of very small seeds. Sow your seeds in finely worked soil as directed on packets. Water lightly and cover ground lightly with grass clippings. Then on the next day when they are all dried, sprinkle with clippings again. In two or three days repeat if needed. If the weather remains hot and dry they will need it again.

Feel the ground meantime under the clippings and if it is dry sprinkle lightly with water. You may have to do this in the middle of some unseasonably hot day to prevent the tiny seeds from drying out. If there comes a beating rain during this time, take a twig and lightly loosen the mass of grass blades after a couple of hours.

After seeds germinate spread grass clippings between the rows if the others have dried up and disappeared. Moisture is absolutely necessary at all times with any dainty seeds where the spark of life is so tiny and so easily burned out.

—Portia Gilpin.

Wheaton, Ill.

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Annuals Easy to Grow

IT WILL be interesting to learn what success eastern readers of *Horticulture* are having with the African arctotis and dimorphothecas, both the annuals and first-year-blooming perennials. These wild flowers had not been introduced to American growers during my gardening days in northern New Jersey and my only experience with them is western. It seems to me that many of the annual species would revel in the warm eastern Summers and, in light soils in the sun, give much mid- and late-Summer color, filling in the empty spots which I remember so well occurring in front of early mid-season and late-blooming phlox. Dimorphotheca annua is one of the best annuals of this genus. Its white flowers look rather like those of D. ecklonis, although they are only two inches across, and the color on the reverse of the rays varies from red-brown to purple.

The South African daisy, which has settled down in quantities on my wind-swept hillside, came to me from Africa named Arctotis grandis although it does not answer that description in "Hortus." The few seeds, sown where they were to bloom, produced yellow and orange flowers which I crossed with a brick-red color-form procured from a fellow-experimentor. The whole hillside is now abloom for most of the year with these three- to four-inch-wide daisies in many shades of magolica yellow, burnt orange, bronze and red-browns as well as white, purple-madder and wine shades. Each plant has its own shade of ray-base-shading, so that the rings around the disk flowers have different colorings. The foliage varies almost as much as the color of bloom, for while some plants have entire leaves, others have leaves which are finely cut.

The only attention any of my African daisy species get is when, once—perhaps twice—a year, I go among them with a little pick, hacking out weeds and arctotis colors I do not want (usually yellows) and those which I think have done duty enough and are ready for the compost heap, those which are three or four years old. Plants which give color and are easy to grow are necessary to the garden during wartime, for that is when cheer is needed and time for producing it is scarce. To this class of serviceable independents belong the arctotis and dimorphothecas.

—Lester Rowntree.

Carmel, Cal.

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There are only 15 of the country's 48 states in which the Massachusetts Horticultural Society is not represented by at least one member. Some of these members have never been to Boston and yet feel that what they receive from the Society is well worth the $3.00 in dues which they pay each year.

Each member receives a copy of HORTICULTURE twice a month without extra charge, a copy of the annual Year Book and the privilege of borrowing books from the library. The privilege of borrowing books has no geographical limitations. Hundreds of books go each year by mail to different sections of the country. The Society's library, the largest of its kind in the United States, receives every worthwhile gardening book almost as soon as it is published, and prints lists of recent accessions frequently.

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THE SECRETARY
Horticultural Hall Boston, Mass.

THE PENNSYLVANIA HORTICULTURAL SOCIETY

(Organized November 24, 1827)

REMAINING 1943 GARDEN VISITS

SATURDAY, MAY 22, 2-6 P.M.
AMBLER, School gardens, courtesy of School of Horticulture for Women.

SUNDAY, JUNE 6, 3-6 P.M.
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WEDNESDAY, JUNE 9
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Open to members only, who must apply for tickets to
THE SECRETARY, Room 601, 1600 Arch St., Philadelphia, Pa.

THE HORTICULTURAL SOCIETY OF NEW YORK

598 Madison Avenue, New York City

Monthly Meeting

MAY 19

2:30 P.M. to 5 P.M.

Iris Show

May 28 2 P.M. to 10 P.M.

May 29 10 A.M. to 6 P.M.

Schedule may be obtained from the Secretary.

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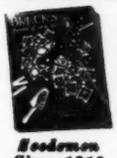

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Part I of this book is the "Flower Encyclopedia" in which all of the favorite flowers and all of the less familiar ones most suitable for the home garden are presented in alphabetical order. Each is fully described and its important types and varieties are clearly differentiated. Detailed directions are given for the planting and care of each kind.

Part II is the "Gardener's Guide" giving the reader the important facts which apply to the garden as a whole. The various kinds of gardens are discussed—borders, beds, rock gardens, pools and groups of indoor flowering plants. A convenient table indicates the heights of annuals and perennials so that they may be planted most effectively. Another table lists the flowers according to color.

Useful Book's Third Printing

"Useful Plants of the World," by Willard N. Clute. Published by Willard N. Clute & Company, Indianapolis, Ind. Price $3.75.

This is a third edition of a book which tells what the different kinds of plants are good for. Its chief object is to give a common, technical and family name to the useful species of plants with such other information regarding them as may prove of interest to the general reader. No attempt is made to discuss the geography, range, abundance or commercial values of the forms mentioned.

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